



## LOPPER SHEAR WITH AN IMPROVED STRUCTURE

### RELATED U.S. APPLICATIONS

Not applicable.

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable.

### REFERENCE TO MICROFICHE APPENDIX

Not applicable.

### FIELD OF THE INVENTION

[0001] The present invention relates generally to a lopper shear pull-rope grip, and more particularly to a lopper shear pull-rope grip which is designed with adjustable rope length and positioning for convenient and loose-free usage.

### BACKGROUND OF THE INVENTION

[0002] The lopping shear is generally applied to control the shear of cutting tools via the pull-rope grip. For this purpose, a grip 50 shall be provided at one end of the rope 60 for the end-user (as shown in FIG. 5). To match the practical height of different end-users and meet the labor-saving requirement, the grip 50 60 shall be designed with an adjustable length of rope 60 and positioning for convenient usage. The typical structure is as follows: a bulge 51 (as shown in FIGS. 6 and 7) shall be provided at the upper end of an arc grip 50. And, the bulge 51 is mounted with an open hole 52,

which is connected to a hollow notch 53 within the grip 50 for the threading of a rope 60. Besides, the turning site shall be provided with a notch 54, which has a smaller external diameter than the rope 60. A fixation point 55 is placed at both sides of the hollow notch 53 for the threading of rope 60. Furthermore, an awl 56 is arranged at one lateral wall of the fixation point 55. Thereupon, adjusting of rope length and positioning of lopping shear is possible. However, the following issues shall be addressed in applications:

[0003] When the grip 50 is used to position the rope 60, the rope 60 shall be located at the notch 54 and fixation point 55 (as shown in FIG. 8), wherein an awl 56 will punch through and fix the rope 60. In the case of smaller pulling force, friction does occur at the turning site of the rope 60, open hole 52 and hollow notch 53. So, it is possible to break off the rope 60 after a long-time application. In the case of bigger pulling forces, the positioning mode will possibly lead to inconvenience arising from loose rope.

[0004] Therefore, based upon the aforementioned disadvantages of a lopping shear pull-rope grip, this industry shall assume the responsibility to make pioneering R& D and innovation for a utility model.

### BRIEF SUMMARY OF THE INVENTION

[0005] The present invention can offer an improved efficiency as detailed below:

[0006] A slanting board 16 extends downwards from a turning site of the through hole 14 of the grip bulge 13 connecting to the hollow notch 15. The slanting board 16 is provided with a conductive rim 17. Moreover, through notches 18 are mounted at the front and back of the projecting grip 10 under the bulge 13. With a blocking rim 19, the through notch 18 is provided with a blocking ring 32 over the blocking rim 19. And, the screws 40 can punch through the blocking ring 32 and pulley 30 for

positioning. Thus, the pulley 30 can slide smoothly along the slanting board 16 of the grip 10, where the rope 20 shall be clamped into another turning site of the through hole 14 connecting to hollow notch 15. When the end-user tries to hold the grip 10 and pull down the rope 20, the rope 20 over the grip 10 will be pulled upwards, making the pulley 30 clamp rope 20 more compactly as shown in FIG. 4. If an end-user wants to loosen the pulley 30, just pull the rope 20 punching through the grip 10 and let the pulley 30 glide, then the rope 20 will be loosened. In such case, it is possible to adjust the rope length for both positioning and for convenient and loose-free usage against bigger force.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0007] FIG. 1 shows a perspective view of the present invention.

[0008] FIG. 2 shows an exploded view of the present invention.

[0009] FIG. 3 shows a cross-sectional view of the present invention.

[0010] FIG. 4 shows a schematic plan of the shear action.

[0011] FIG. 5 shows an external view of the typical structure.

[0012] FIG. 6 shows a cross-sectional view of the typical grip.

[0013] FIG. 7 shows an upward view of the typical grip.

[0014] FIG. 8 shows a schematic plan of positioning of rope by the typical grip.

#### DETAILED DESCRIPTION OF THE INVENTION

[0015] The features and the advantages of the present invention will be more readily understood upon a thoughtful deliberation of the following detailed description of a preferred embodiment of the present invention with reference to the accompanying drawings.

[0016] As shown in FIGS. 1-3, a lopper shear pull-rope grip embodied in the present invention comprises:

[0017] a grip 10, available with a closed end 11 at its top and an open end 12 at its bottom. The closed end 11 is provided with a bulge 13, which has a through hole 14 at the inner side of the grip 10. The through hole 14 is connected to the hollow notch 15 formed by the open end 12, where a rope 20 can punch through hole. And, a slanting board 16 extends downwards from a turning site of the through hole 14 connecting to the hollow notch 15. The slanting board 16 is provided with a conductive rim 17. Moreover, through notches 18 are mounted at the front and back of the projecting grip 10 under the bulge 13. With an oblong oval, the through notch 18 is obliquely installed together with the slanting board 16. Additionally, the through notch 18 has a blocking rim 19;

[0018] a pulley 30, which has a hollow structure. A rim 31 shall be provided externally to match the conductive rim 17 over the slanting board 16 of grip 10, thereby installing it between the through notches 18 at front and back of grip 10. And, a blocking ring 32 shall be provided over the inner blocking rim 19 of the through notch 18, where the screws 40 can punch through the blocking ring 32 and pulley 30 for positioning. Thus, the pulley 30 can slide smoothly along the slanting board 16 of the grip 10;

[0019] Based upon the structures as above specified, the pulley 30 can be pushed over the slanting board 16, where the rope 20 shall be clamped into another turning site of the through hole 14 connecting to hollow notch 15. When the end-user tries to hold the grip 10 and pull down the rope, the rope 20 over the grip 10 will be pulled upwards, making the pulley 30 clamp rope 20 more compactly (as shown in FIG. 4). If the end-user wants to loosen the pulley 30, just pull the rope 20 punching through the grip 10 and let the pulley 30 glide, then the rope 20 will be loosened. In such case, it is possible to adjust the rope length for both positioning and for convenient and loose-free usage against bigger force.